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Education and Liberalism: Pursuing the Link

Background

Over fifty years ago, Lipset (1959) set the scene for research linking the social and political attitudes of the populace with their positions in the social structure. During that time it has become almost routine to measure the positions of the populace along two dimensions which broadly follow the definitions of 'economic' and 'non-economic' or social liberalism (Evans et al 1996; Fleishman 1988; Houtman et al 2008) put forward as essential in helping to 'clarify the relationship between class position and political behaviour' (Lipset (1959) 485). Moreover, that education leads to social liberalism has become one of the most replicated findings in social science (Weakliem, 2002). There is much less consensus about the theoretical meaning of this finding (Houtman, 2001) and still less with regard to the underlying mechanism that generates it. In this paper, we pursue this mechanism using longitudinal data on a cohort of people born in the United Kingdom in 1970. The aim of this exploration is to focus on possible locations for the mechanism linking education and liberalism and to suggest where theoretical possibilities do not find empirical support.

'Liberalism' and social values

In the US it had been commonplace to conceive of liberalism as a single dimension that encompassed both attitudes to economic issues such as redistribution and trade union power and social issues such as tolerance of minority groups and capital punishment. However, Lipset's (1959) article highlighted the need to distinguish between two different dimensions of 'liberalism'; the economic and the social and since

the 1990's there has been a widespread consensus that this uni-dimensional approach does not adequately capture the subtleties of social values (Flanagan 1987; Fleishman 1988). In the UK, the work of Evans et al (1996) crystallised these two dimensions as a ' 'left-right' dimension (economic liberalism) and an libertarian-authoritarian dimension (social liberalism). The economic dimension is concerned with issues of distribution, public ownership and the balance of power between employees and employers, while the social dimension is concerned with issues of personal freedom and authority. The literature on education has focused almost exclusively on the social dimension, usually referring to this simply as 'liberalism'.

The 'education' effect

Despite the 'unequivocal finding' that education is related to social liberalism, it remains 'an open question…what aspects of education are responsible for the relationship' (Stubager (2008) 328). There is, however, no shortage of potential candidates. Following Persson (2014), we divide these potential explanations into 'Absolute' effects and 'Proxy' effects.

Proxy effects

Models which suggest education acts as a proxy for other (usually unmeasured) factors suggest that whilst there is a correlation between education and liberalism this is not a direct effect of education itself. These models may be further subdivided into 'pre-adult effects' (Persson, 2014) and 'allocation effects' (Stubager, 2008).

The 'allocation effects' model argues that education leads to privileged positions in the social order which give rise to particular material interests; these in turn produce differences in social values. The way in which these social positions generate liberalism is contested but is most commonly linked to the relationship between educational attainment and occupational position, either via 'relative deprivation'

(Jenssen and Engesmak, 1994) or via work related factors such as autonomy in the work place (Kitschelt, 1995).

The 'pre-adult' effects model proposes that there is an effect causally prior to both education and values which influences both; the relationship between education and values is spurious. Possible candidates include social background, where the emphasis is on the role of parental social class and parental education levels (Bynner and Ashford, 1994, see also Paterson 2008 for a more detailed examination of the effects of parental social class on social attitudes) and cognitive ability (Deary et al 2008).

A further pre-adult effect, highlighted in the work of Lipset (1959) and pursued within political psychology (Flouri, 2004) has received little attention in relation to the 'education effect'. Whilst Lipset's article has rightly been critiqued for its conflation of education and class processes (see for example Houtman et al 2008), it also points to particular elements of working-class experience which are perceived as responsible for authoritarian values. Among these are the authoritarian parenting practises of the working class. Although clearly related to social background, this has not been explicitly modelled, alongside education, as a separate factor contributing to authoritarianism.

'Absolute' effects

Although the analysis conducted here includes appropriate controls for 'proxy' effects, the absolute effects of education on liberalism are our primary concern. Following Phelan et al (1995) and Stubager (2008) these may be grouped into three broad types; 'psychodynamic', 'cognitive' or 'developmental' and 'socialisation' models. Whilst, many commentators combine these modelsin trying to understand the

mechanism underpinning the link between education and liberalism it is useful to maintain these distinctions.

Proponents of a 'psychodynamic' model (McClosky and Brill 1983) argue that education fosters psychological security, or a sense of control or mastery over one's own life, whilst low levels of education lead to a lack of psychological security. Those who are more psychologically secure are better able to deal with occurrences that deviate from their own experiences. As a result they are more likely to be tolerant of those with different ways of life, with tolerance of the unconventional being a mainstay of social liberalism.

In contrast, the cognitive model suggests that it is education's role in bringing about greater knowledge and rational thinking which promotes social liberalism. As Nun, Crockett and Williams (1978) put it '…the greater the schooling, the more likely that one's cognitive development will be characterized by the flexible, rational strategies of thinking which encourage democratic restraint' (61). Thus, the effects of education lie in the broadening of perspectives and in fostering an ability to look at issues from different points of view, or as it has been termed a process of 'enlightenment' (Nie, Junn and Stehlik-Barry 1996).

Finally, the 'socialisation' model suggests that it is the experiential elements of education which foster liberal values as these are directly transmitted as part of the educational process. In this model, liberal values are learned alongside the subject specific knowledge within different disciplines via textbooks and formal contacts with educators and via informal contacts with other students and educators. This socialisation model has recently found support in the work of Stubager (2008) in the Danish context, Van de Werfhorst and de Graaft (2004) in the Dutch context and Phelan et al (1995) in the US.

Discriminating between the 'cognitive' and 'socialisation' models is particularly challenging as both make broadly the same prediction – crudely 'education liberalises'. Stubager (2008) and Van de Werfhorst and de Graaf (2004) each make use of data on the field of study, to further discriminate between models. Van de Werfhorst and de Graaf (2004) argue that there is no reason to expect field differences according to the cognitive model as all fields of study should develop cognitive sophistication to a similar level; they go on to argue that fields of study with an emphasis on communication and social skills are more liberal in both the economic and social sense than those with lower qualifications or qualifications in fields which do not address social and communication skills.

Phelan et al (1995) use data on both economic and social values to adjudicate between models, arguing that, whilst it is not possible to discriminate between cognitive and socialisation effects based on predictions about social values alone, each has a unique configuration of values when economic liberalism is also considered. They argue that the cognitive model should entail greater empathy to disadvantaged groups and therefore greater economic and social liberalism. They go on to argue that the socialisation effect works to socialise into an official or ideal culture which in the US emphasises individual rights but is strongly laissez faire in its orientation to economic aid. Both of these approaches find stronger support for the socialisation model in the respective areas (the Netherlands and the US) and little or no support for the cognitive model. This paper combines these approaches, using data on both the field of study for those with degree level qualifications and measures of both economic and social liberalism.

Figure 1 about here.

Hypotheses

As indicated in Figure 1, the following hypotheses can be taken from the literature.

'Proxy' effects

- Allocation effects (H1):

  Both economic and social liberalism are driven by material interests brought about by positions in social space. Higher social class positions will be strongly related to both economic conservatism and social liberalism. Education effects should be considerably reduced once social class is taken into account.

- 'Pre-adult' effects:

  Social background (H2):

  Both economic and social liberalism are related to social background (parental social class and parental education). Those with parents from lower social classes will have greater economic liberalism while those with parents with low levels of education will have lower social liberalism. Education effects again should be considerably reduced once social background is taken into account.

  Cognitive ability (H3):

  Those with higher levels of ability should be more liberal on both economic and social issues. The effects of education should be considerably reduced when ability is taken into account.

  Parental authoritarianism (H4):

Greater parental authoritarianism leads to lower levels of social liberalism. Parental authoritarianism is not related to economic liberalism. Education effects on social liberalism should be reduced by parental authoritarianism.

'Absolute' effects:

- Psychodynamic effects (H5):

  Higher levels of psychological security should lead to greater tolerance and therefore higher levels of social liberalism. High levels of psychological security may undermine empathy with the less advantaged and lead to lower levels of economic liberalism. Education effects should be reduced when psychological security is taken into account.

- Cognitive effects (H6):

  Education should lead to higher levels of both economic and social liberalism. These effects are unlikely to vary according to field of study.

- Socialisation effects (H7) :

  Education should lead to higher levels of social liberalism, economic liberalism will not be affected by educational attainment[1]. Differences will be evident according to field of study, with those fields where emphasis is placed on understanding human behaviour showing greater social liberalism than other fields.

The analyses presented below seek to distinguish which of these competing hypotheses find empirical support. We do not see all of these effects as mutually

exclusive; however it is useful in seeking to understand the mechanisms underlying the education liberalism link to maintain these analytical distinctions.

Data

Data are drawn from the 1970 British Cohort Study (BCS70), which has followed the lives of a cohort of children born in the week of the 5 to 11 April 1970. Data have been collected about the cohort at regular intervals since 1970, when the cohort members were aged 5, 10, 16, 26, 30, 34, 39 and most recently at age 42. Our main data on the educational attainment of the cohort members and their social values are taken from data collected when the cohort members were aged 30, in 2000. Table 1 summarises the data used in analyses, the wave each element is taken from and the number of responses for each measure.

Table 1 about here

This kind of longitudinal data provide a unique source for understanding social values; it ensures that family background variables are recorded accurately during a child's development, rather than collected retrospectively. Also of critical importance in exploring the relationship between education and the development of social values are measures of cognitive ability which allow for ability to be controlled for independently of achieved educational qualifications. Finally, longitudinal data on values allows an exploration of the extent to which education fosters value change versus value reinforcement due to self-selection in post-compulsory educational settings.

As with all longitudinal data, there are issues of response attrition to be considered within the BCS70. As Table 1 shows, for the analyses presented here this is especially marked for data collected when the cohort members were aged 16. For this

reason, we have tried wherever possible to use data from other waves to minimise the impact of non-response. We also ensure that where the models do include data collected at age 16 models excluding this data have been tested on the reduced sample that the age 16 data produces to ensure we do not wrongly attribute reductions in effects to the introduction of variables instead of a reduction in statistical power due to reduced sample size[2]. Whilst attrition is a serious issue, especially where sample sizes are reduced such that more detailed analysis becomes impossible, analysis has shown that there is little response bias within the BCS70, that is to say achieved samples did not generally differ from target samples (Shepherd 1997).

Measuring 'Liberalism'

Our measures of liberalism are taken from the data when the cohort members were aged 30. Firstly, we use what has become the 'standard' measure of (social) liberalism in the UK (Evans et al 1996); this scale is made up of the following five items:

- People who break the law should be given stiffer sentences
- Young people today don't have enough respect for tradition British values
- For some crimes the death penalty is the most appropriate sentence
- Censorship of films and magazines is necessary to uphold moral standards
- Schools should teach children to obey authority

Economic liberalism is also measured using a scale devised by Evans et al (1996) and comprises five items

- Big business benefits owners at the expense of the workers
- Ordinary working people do not get their fair share of the nation's wealth

- Government should redistribute income from the better off to those who are less well off
- Management will always try to get the better of employees if it gets the chance
- There is one law for the rich and one for the poor

For each of the items in the above scales there were five response categories: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree. The responses were coded such that low values represented the liberal position in each case, items were then summed together and divided by the number of items on the scale. Thus producing a scale which runs from 1 (most liberal) to 5 (least liberal) in each case.

Measuring 'education'

Our basic measure of educational attainment is the highest academic qualification achieved by the cohort member by age 30[3], this is initially coded into six groups: no qualifications, CSE's and equivalents, O levels and equivalents, A levels and equivalents, Diplomas, and Degree or Higher Degree. Due to the centrality of this measure in the analysis any cohort member for whom these data are not available are excluded from analysis.

Field of study is included within this breakdown of educational attainment for some analyses presented below. Thus, for those with a degree or higher degree[4] the subject of their first degree has been coded into six categories: Medicine and related, Science and Technology, Humanities, Business subjects, Creative Arts and Design and Other/Unknown[5]. Table 2 summarises this extended educational variable. We would have liked to pursue the field of study variable in greater detail, however the available cases are limited particularly in the less commonly studies fields such as Medicine.

Table 2 about here

Controls and other measures

Table 1 shows the other variables used in the analysis. Parental authoritarianism is measured using 17 items collected via a parental questionnaire when the cohort members were aged 5. These were selected from a list of 30 items using exploratory factor analysis and reliability indices. Typical items from the scale include[6]:

- A well brought up child is one who does not have to be told twice to do something
- A person that does not let others stand in his way is to be admired

This scale is created by summing the items together and dividing by the number of items and standardising. Low values on the scale indicate lower levels of parental authoritarianism.

Measures of cognitive ability are taken from school-administered tests at age 10. Language ability is measured by the British Ability Score for word similarity, this ranges from 0 to 20, mathematical ability is measured by the 'friendly maths test' which ranges from 0 to 72.

Psychological security is measured through a scale of personal efficacy taken from the data collected at age 30. Three items comprise this scale

- I usually get what I want out of life
- I usually have a free choice and control over my life
- Usually I can run my life more or less as I want to

These items were coded such that low values equated to low levels of efficacy, they were then summed and divided by 3. The variable has been standardised before use as an explanatory variable in the models.

The final models in the analysis make use of data on the social values of the cohort members at age 16. Three measures are used. A scale of social liberalism devised from a longer list of items. These items were first subjected to an exploratory factor analysis to identify an approximate structure within the data. This yielded a six item first factor based on the following items

- Women can do the same jobs as men
- Black people are just as good as white people
- Women's lib is a good thing
- Black people should not marry white people
- It's up to the Africans to grow enough food to feed themselves
- Homosexuals should be prosecuted

These six items capture the element of social liberalism related to tolerance. To also capture elements related to authority two further items were included:

- Flogging should be brought back for violent crime
- Hanging should be brought back (for murder)

Only two measures of economic liberalism were available, these are included separately within the analysis:

- Strikes should be made illegal
- Trade Unions are necessary to represent workers' rights

All of the attitudinal items at age 16 had three response categories: disagree, partly agree, agree fully. For the social liberalism scale these were coded such that low

values represented the most liberal positions, summed together, divided by the number of items and then standardised for use in analysis. The two measures of economic liberalism were simply coded into agree and disagree.

Although not specifically included in the mechanisms discussed above, each of our models controls for gender to ensure that potential effects of gender differences on education levels and field of study are taken into account.

Modelling strategy

All analyses use OLS multiple linear regression models. The modelling strategy reflects our primary interest in the links between education and liberalism. Thus, we begin with the simple model which includes only the cohort member's educational attainment at age 30 and a control for gender. Additional explanatory variables are added to the model to explore each of the hypotheses:

Model 1: Education only

Model 2: H1: Allocation effects (Social class)

Model 3: H2, H3 and H4: Pre-adult effects (Parental education, parental social class, parental authoritarianism and cognitive ability)

Model 4: H5, H6 and H7: Psychodynamic, Socialisation and Cognitive effects: (Psychological security and field of study)

Model 5: Self-selection effects (Attitudes at age 16)

For categorical explanatory variables a reference category is chosen, this is shown in brackets in the tables below; determined by substantive interest and sample size.

Analysis

'Proxy' Effects

Table 3 below shows Models 1 and 2, the simplest model of education effects and the 'allocation effects' model.

Table 3 about here

Model 1 shows that there are strong and statistically significant links between educational attainment and each of the measures, however there are important differences between the scales. The relationship between economic liberalism and education is a negative one, the more highly educated a person is the *less* liberal (more conservative) they are on economic issues. This appears to crystallise around a divide between those who hold qualifications gained in post-compulsory educational settings and those who do not, with those with A levels, Diplomas and Degrees or Higher degrees all more economically conservative than those with O levels, while those without qualifications or with CSEs are more economically liberal. This pattern is consistent with the 'proxy' effects models, particularly the allocation effects model where education is related to social position.

A similar break between compulsory and post-compulsory education levels is observed for social liberalism, however, as we would expect, on this scale higher levels of education lead to increased liberalism. This scale shows a particularly marked difference for those with degrees or higher degrees. These differences on the social liberalism scale represent the education – liberalism link we are seeking to understand. Whilst differences on the economic liberalism scale provide additional insight into the

way in which education shapes values. We begin by exploring the 'proxy' effects models described above.

Model 2 adds social class to the analysis and represents a partial test of the allocation effects model. If this model were able to explain the education-liberalism link we would expect to see a strong relationship between social class along with a substantial reduction in the size of the educational effects on both economic and social liberalism.

Figure 2 about here

As seen in figure 2, comparing the educational effect sizes in models 1 and 2 there is, in each case, a reduction in the size of the effect after the inclusion of social class in the model. This reduction is substantial on the economic liberalism scale – suggesting that a significant portion of the education effect on this scale is, indeed, an allocation effect. Nonetheless, there remain statistically significant differences according to educational attainment that are not explained by social class. These effects follow a linear pattern from the lowest levels of qualifications, which are the most liberal, to the highest levels which are the least liberal on this scale.

In contrast, the education effects on social liberalism are only marginally reduced by the introduction of social class, suggesting that these effects are not allocation effects. Further evidence of this is the lack of statistically significant relationships between social class and this scale. This is strong evidence that the link between education and social liberalism is not due to the distribution of educational qualifications in occupational space. Moreover, on this scale the link between education and liberalism is non-linear, with the groups holding qualifications gained during compulsory schooling (no qualifications, CSEs and O levels) being no different to each

other, whilst those with degrees or higher degrees are substantially more liberal than other groups.

Having established that there is no evidence that the educational effects can be explained by the allocation effects model, we add additional explanatory variables to the model to explore potential pre-adult effects. Model 3, shown in Table IV, adds measures of parental education, parental social class, parental authoritarianism and cognitive ability as explanatory variables. As before, we would expect that if there is a pre-adult effect at work the introduction of these variables would result in a substantial reduction in the education effects.

Table 4 about here

Table 4 and Figure 2 show that the introduction of controls for pre-adult effects (model 3) also reduces the education effects on both economic and social liberalism. In the case of economic liberalism this reduction is such that there are few statistically significant education effects remaining. In other words, the link between education and economic liberalism can be explained in terms of 'proxy' effects, partly by 'allocation effects' and partly by 'pre-adult effects'. Of these 'pre-adult effects', social background (measured by parental education and occupation) seems to have the greatest influence. Although not our primary concern here, it is worth noting that differences according to both the cohort member's and their father's social class appear formulate along a manual-non manual divide.

As we would expect parental authoritarianism does not have a statistically significant effect on economic liberalism. The effect of cognitive ability is also relatively weak, with no effect for language ability as measured by the British Ability score. There is, however, an effect of mathematical ability, with those with higher mathematical ability at age 10 being less economically liberal.

Education effects on the social liberalism scale remain strong after the inclusion of the pre-adult effects, suggesting that the education – liberalism link in the social domain *cannot* be explained by 'proxy' effects models. On this scale, there is no significant effect of social background (as measured by parental education and occupation). There are, however, relatively strong effects of parental authoritarianism, with those whose parents showed greater authoritarianism holding less liberal values themselves. Both language and mathematical ability are also related to values, with those who had higher ability at age 10 more liberal on both scales.

Despite the presence of some significant effects from these control variables the effect of educational attainment on social liberalism remains strong. This is most marked around a divide between those with post-compulsory educational experience and those who left education at age 16 and additionally a particularly marked effect for those with degree or higher level qualifications. Clearly, in pursuing the link between education and social liberalism we must look beyond education as a 'proxy' for other factors.

Absolute effects

Taking the models discussed so far together we are left with large effects of educational attainment on social liberalism which are not explained by 'proxy' effects models. Thus we now pursue the absolute effects proposed for the education – liberalism link: the 'psychodynamic', the 'cognitive' and the 'socialisation' models. In Model 4[7] we add measures of psychological security, as a test of the psychodynamic model and employ data on the field of study for those with degree level qualifications to try to discriminate between the cognitive and socialisation models[8].

Table 5 about here

The effects shown in Table 5 provide suggest that the psychodynamic model cannot explain this link. Whilst there is a statistically significant effect of psychological security on the economic liberalism scale no such effect is present for social liberalism[9]. We are left then, with two competing absolute effects models, the cognitive model and the socialisation model. It worth recapping our expectations for the field of study effects in each case (H6 and H7 respectively). Firstly, following Van de Werfhorst and de Graaf (2004) we expect, if the cognitive model can explain the education – liberalism link, there to be no differences according to field of study on the scales. If the socialisation model is a viable explanation of the link we would those who attained degrees in social sciences and humanities (subjects closely related to human behaviour and with social and communication skills) to be the most socially liberal. We should note that in Table 5 the statistical significance of the educational effects is measured against O level as the reference category, for consistency with the earlier models, therefore in each case we are testing if those with degrees in a given subject are different from those with O levels. However, differences according to field of study can be inferred by comparing the size and direction of the differences in the model.

Figure 3 about here

Figure 3 summarises the field of study effects on each scale. The combination of field of study and different measures of liberalism is especially revealing. For the social liberalism scale we see that in each case those with degrees are more liberal than those with O levels, regardless of the field of study of that degree. There are, however, differences in the size of this effect with those with degrees in social sciences and humanities the most liberal of all the education groups and those with degrees in

business studies the least liberal of those with degrees. This suggests some support for the socialisation model as it is those subjects where social and communication skills are emphasised which appear to promote the greatest social liberalism. Further evidence is found by considering the economic liberalism scale. Prior to the introduction of field of study, the only statistically significant effect of educational attainment on economic liberalism was for those with no qualifications who were more liberal ('left-wing') than those with O levels. However, the introduction of field of study shows that there are also significant effects on this scale of holding a degree in a science or business related subject, with the effect especially marked for degrees in business related subjects.

Before citing this as conclusive evidence of a socialisation effect, it is possible that the differences seen on the economic liberalism scale reflect pre-existing value differences, or a self-selection by field of study, with those who are more in favour of 'big business' more likely to study business subjects. In order to explore this possibility we are fortunate in being able to draw on measures of the values of the cohort at age 16. As discussed above, the introduction of data from the age 16 wave of the survey does result in a considerable curtailment of sample size, nonetheless it offers a unique possibility to combine measures of field of study with prior social values. Due to the considerable reduction in sample size available for his model measures of parents education and occupation were removed from the analysis.

Table 6 about here

Table 6 suggests that while values at age 16 are an influence on values at age 30, the differences according to field of study seen in Table 5 cannot be explained by self-selection alone. Social liberalism at age 16 is strongly related to social liberalism at age 30 but is not related to economic liberalism, suggesting that the difference between economic and social liberalism is present even in formative social values. This

is reinforced by the measure of attitudes to trade unions which is strongly related to economic liberalism at age 30 but not to social liberalism. Attitudes to strikes show a more complex relationship having an influence on both economic and social liberalism reflecting, perhaps, that the issue relates to both economic power and individual liberty.

For our purposes, however, it is the presence of significant educational effects after controlling for age 16 values that is of greatest importance. Even after controlling for prior social values, those who had attained a degree in a business subject were by far the least economically liberal group, whilst those with degrees in social sciences are the most socially liberal. These differences are strongly suggestive of processes of socialisation; effects appear to be strongest where there is substantive synergy between field of study and social values.

Discussion

The models presented above suggest that there is little evidence that the relationship between education and social liberalism can be explained by allocation effects, 'pre-adult' effects or as a 'psychodynamic' effect of education. In each case the evidence presented either demonstrates that the effect is not statistically significant on social liberalism (as with the psychodynamic model) or that significant educational effects remain after controlling for other effects (allocation and pre-adult models).

The paper has shown a lasting effect of parental authoritarianism and cognitive ability on values in adulthood, whilst these effects do not explain the 'education effect' they are of interest in their own right and worthy of further attention in understanding the formation of social values.

Whilst the models presented replicate the 'well-established' link between higher levels of education and liberal values, they have also shown that this is not a simple linear pattern, distinct breaks occur between compulsory and post-compulsory

education and between higher education (degree level) and other types of post-compulsory education. These large differences between different levels of education are strongly suggestive of a process of socialisation; it is likely that the educational experiences at different levels of education are fundamentally different, with experiences in post-compulsory education differing significantly from compulsory education and experiences of degree level education again differing substantially from other types of post-compulsory education. Were a process of cognitive development at work we might expect value differences to be more gradual as educational experience increases.

The combination of field of study with alternative measures of liberalism has offered additional insight into the way in which the socialisation model may work, whilst also finding little empirical support for the cognitive model. In particular, it is clear from the models including field of study that differences in values reflect both substantive and informal socialisation processes; groups with higher levels of education are more liberal in the social sphere but this effect is greatest in fields of study related to human understanding. This process is highlighted further by the values of those with degrees in business related subjects on the economic dimension, where it would appear that field specific socialisation may occur where subject knowledge overlaps with political and social values.

The use of longitudinal data in this context has allowed us to test for self-selection in the field of study effects and suggests that while earlier social and political values play an important part in the values held in adulthood, these differences do not explain the field of study differences seen in the models. Whilst the value measures at age 16 are not perfect replications of age 30 values, there is no substantial reduction in the education effects after the inclusion of values at age 16. In other words, there are

additional socialisation effects at work in higher education, which relate to the subject being studied and not the prior values of those choosing to study them.

The cohort design offers both strengths and weaknesses for understanding the education – liberalism link. Whilst it allows us to compare those with different educational levels who have otherwise similar experiences, having grown-up in the same broad social and political environment (in this case the cohort belongs to what have been termed 'Thatcher's children' having many of their formative experiences during the years of the Thatcher government (1979 – 1990). It nonetheless fixes the investigation in a particular time and it cannot be simplistically assumed that the experiences of this cohort can be generalised to those entering higher education today. First eligible to enter higher education in 1988, this cohort were one of the last to receive maintenance grants and to complete their compulsory schooling before the introduction of GCSEs. Around 1 in 5 of this cohort entered higher education, compared with around 2 in 5 in 2014 (BIS (2015)).

The education – liberalism link has been observed in a number of different periods and spaces but it remains an open question as to whether it persists when systems expand to 'mass' higher education. The evidence presented here suggests that the link is most likely to change where the 'massification' of the system leads to changes in the socialisation processes experienced by those entering higher education. This may occur where a large proportion of the students chose to stay at home for financial reasons rather than choosing to live in University accommodation or where the nature of teaching changes such that there is less direct contact between tutors and students. In conclusion, the paper has provided an extensive exploration of potential mechanisms whereby 'education liberalises', the evidence strongly suggests that of all the potential mechanisms that have been suggested a socialisation model appears to find the greatest empirical support. Data of this kind are not able to unpack exactly how this

socialisation process takes place, be it through formal contact and teaching materials or informal contact with tutors and a heterogeneous student body, but they have allowed us to discriminate between competing explanations for the education-liberalism link and offer insights as to where to look to see the development of this link in action.

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Notes

[1] Unlike the US where the 'official' culture is strongly 'laissez-faire', we do not believe it is possible to predict a single direction of influence of a socialisation effect on economic liberalism in the UK. We, therefore, adopt a null hypothesis that there is no effect.

[2] Tables showing the coefficients for these models on the reduced sample size are available on request from author.

[3] The author would like to thank Brian Dudgeon at the Centre for Longitudinal Studies for access to SPSS code to create this variable.

[4] Due to the nature of the UK education system it does not make sense to consider field of study effects at earlier stages as it is possible to maintain a broad based group of subjects through to 'A' level.

[5] This coding was prepared manually placing each of the subjects into one of 19 groups based on the Joint Academic Classification of subjects used by HESA. These groups were then further collapsed into the six groups listed (full details available by request) Cases which were not codable based on the text description given, were a combined degree that was not able to be allocated to a category or which did not have a subject listed for their first degree are included as 'Other/Unknown'.

[6] Full details of the items are available on request from the author.

[7] For presentational purposes we have not included the other coefficients from the models, these remain substantively unchanged from those in Model 3.

[8] Field of study was included only for those with degrees for both substantive and empirical reasons. Firstly, empirically those with degrees or higher level qualifications were by far the most liberal group on the social scales. Secondly, for lower levels of education people typically study a broader range of disciplines making separation of field of study variables much more difficult and also potentially undermining the distinction between fields of study crucial to our understanding of the cognitive and socialisation models.

[9] It should be noted that psychological security questions are collected from the same wave of data as values and therefore this does not represent a 'pure' test of the effect of psychological security on attitudes, however we would still expect to find statistically significant effects were these two factors related.

Figure 1: Potential Explanations for the education – liberalism link

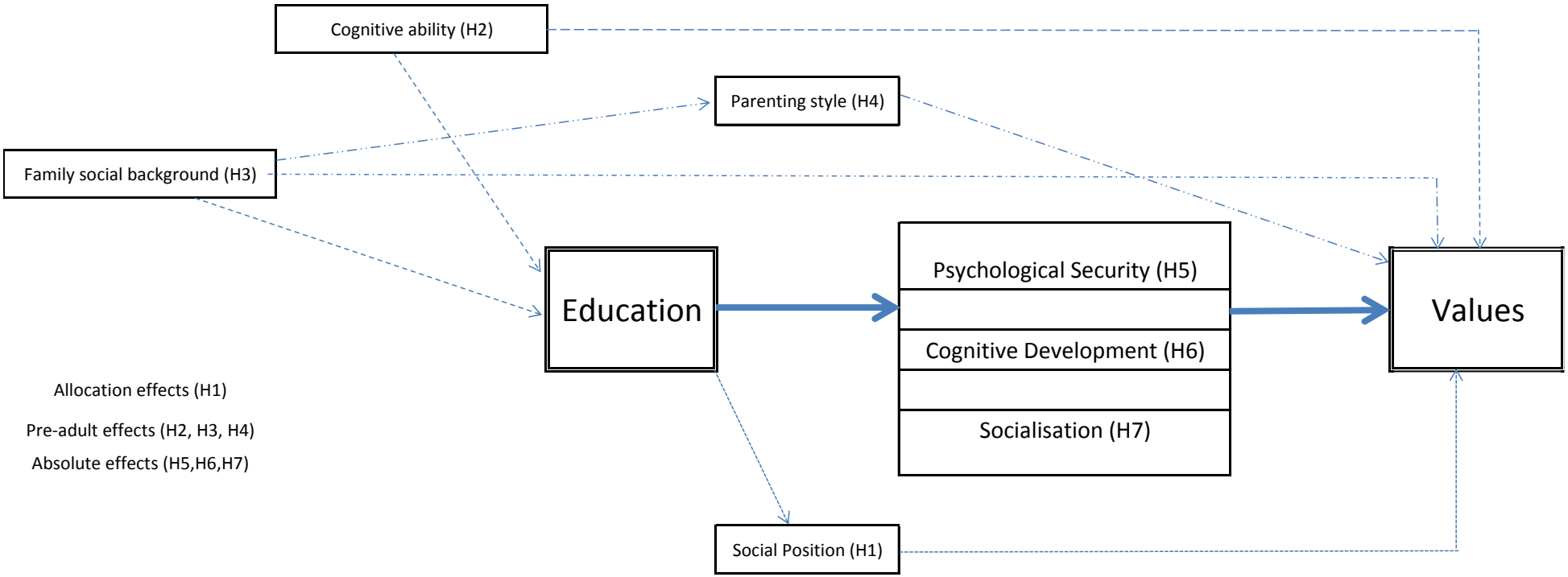

Figure 2: Unstandardized Education regression coefficients from Models 1,2 and 3.

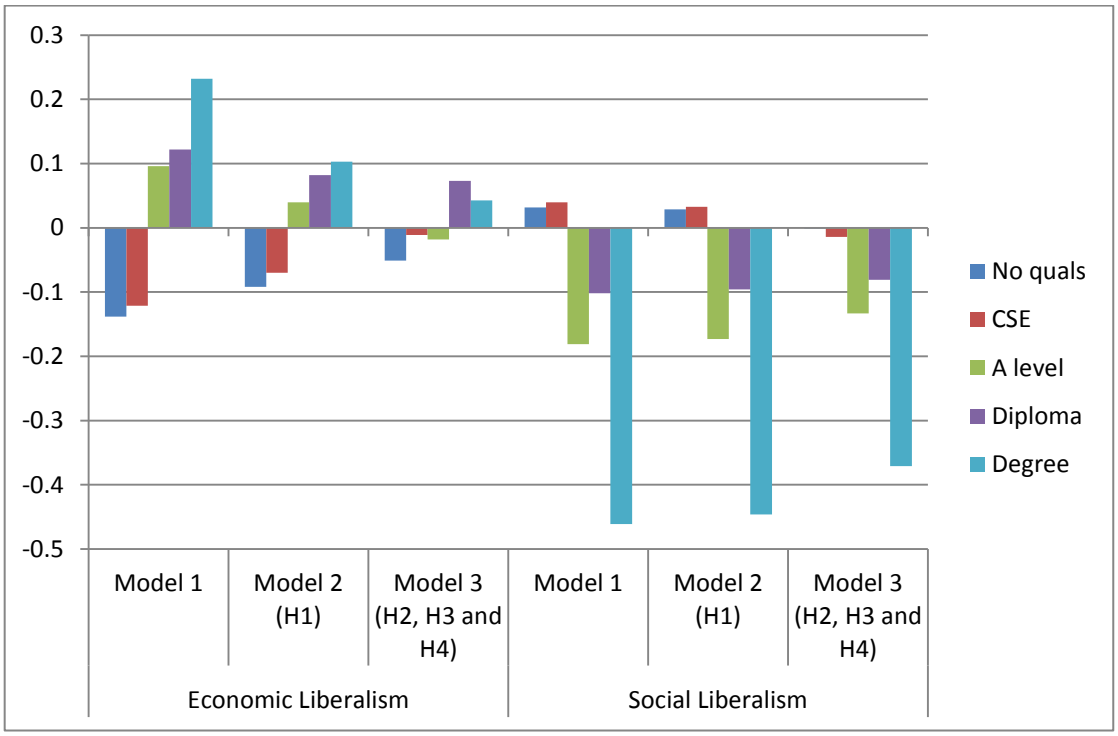

Figure 3: Unstandardized Education regression coefficients from Model 4

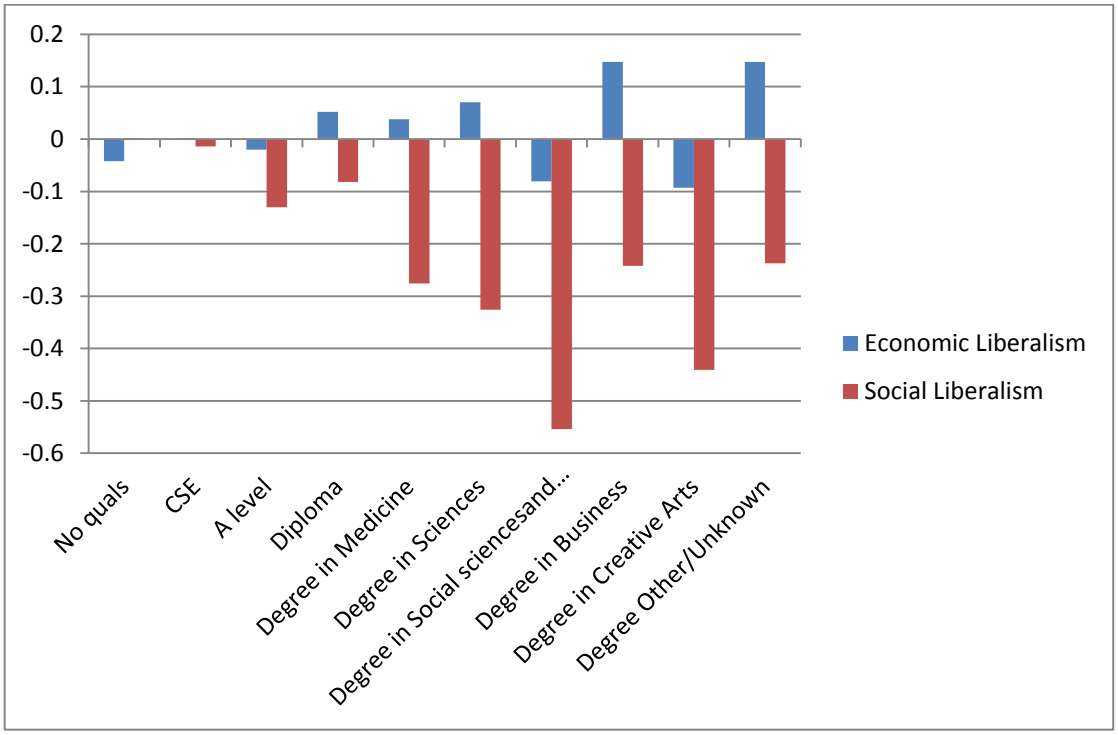

Table 1: Indicators used in analysis, survey wave and number of responses

Indicator	Cohort member age when data collected	Responses
Economic liberalism (scale)	30	10217
Social liberalism (scale)	30	10224
Highest educational qualification	30	10315
Social class	30	11261
Gender	30	11261
Mother's highest educational qualification	5	14577
Father's highest educational qualification	5	14577
Father's occupational class	5	14577
Parental Authoritarianism (scale)	5	11429
British Ability Scale (word similarities)	10	11685
Friendly Maths Test	10	11685
Psychological security (scale)	30	11063
Social liberalism at age 16 (scale)	16	4642
Attitudes to Trade Unions age at 16	16	5434
Attitudes to Strikes (age 16)	16	5391

Table 2: Highest educational qualification, frequencies

No qualifications	2854	
CSEs	805	
O levels and equivalents	3201	
A levels and equivalents	684	
Diploma	693	
Degree or higher degree	2078	
Degree in Medicine		120
Degree in Science and technology		717
Degree in Social science, Humanities and Law		543
Degree in Business and related subjects		254
Degree in Creative Arts and Design		151
Degree in Other/Unknown Subject		293

Table 3: Models 1 and 2: Liberalism and Education, allocation effects

	Economic liberalism			Social liberalism		
	B	St. Err		B	St. Err	
Model 1						
Constant	2.564	0.013		3.817	0.012	
Education effects						
Highest educational qualification (O levels)						
No qualifications	-0.138	0.016	**	.032	0.015	*
CSE	-0.121	0.025	**	.040	0.023	
A level	0.096	0.026	**	-.181	0.025	**
Diploma	0.122	0.026	**	-.102	0.025	**
Degree or higher	0.232	0.018	**	-.461	0.017	**
Control variables						
Female	0.105	0.012	**	0.062	0.012	**
Model R^2	0.052			0.098		
N	10201			10208		
Model 2						
Constant	2.600	0.019		3.807	0.018	
Education effects						
Highest educational qualification (O levels)						
No qualifications	-0.092	0.016	**	0.029	0.015	
CSE	-0.070	0.025	**	0.033	0.023	
A level	0.040	0.026		-0.173	0.025	**
Diploma	0.082	0.026	**	-0.096	0.025	**
Degree or higher	0.103	0.019	**	-0.446	0.018	**
Allocation effects (H1)						
Social class (Skilled non-manual)						
Professional	0.222	0.032	**	-0.030	0.031	
Managerial-technical	0.118	0.019	**	-0.009	0.018	
Skilled manual	-0.118	0.022	**	0.037	0.021	
Partly skilled manual	-0.206	0.025	**	0.036	0.024	
Unskilled	-0.189	0.050	**	0.034	0.047	
Other/Missing	-0.137	0.020	**	-0.027	0.019	
Control variables						
Female	0.110	0.013	**	0.073	0.013	**
N	10201			10208		

* indicates statistical significance at 5% level
** indicates statistical significance at 1% level

Table 4: Model 3: Education and liberalism, pre-adult effects

	Economic liberalism			Social liberalism		
	B	St. Err		B	St. Err	
Model 3						
Constant	2.576	0.059		4.066	0.056	
Education effects						
Highest educational qualification (O levels)						
No qualifications	-0.051	0.021	*	0.000	0.020	
CSE	-0.011	0.031		-0.014	0.029	
A level	-0.018	0.033		-0.133	0.031	**
Diploma	0.073	0.033	*	-0.081	0.031	**
Degree or higher	0.043	0.025		-0.371	0.024	**
Allocation effects(H1)						
Social class (Skilled non-manual)						
Professional	0.160	0.041	**	-0.013	0.039	
Managerial-technical	0.080	0.023	**	0.001	0.022	
Skilled manual	-0.101	0.027	**	0.025	0.026	
Partly skilled manual	-0.192	0.032	**	-0.004	0.030	
Unskilled	-0.083	0.062		-0.011	0.059	
Other/Missing	-0.112	0.025	**	-0.023	0.024	
Pre-adult effects						
Social background (H2)						
Mother's education (O levels)						
No qualifications	-0.053	0.023	*	0.029	0.022	
Vocational	-0.004	0.027		0.015	0.026	
A levels	-0.059	0.044		-0.057	0.042	
Professional	-0.130	0.039	**	-0.027	0.037	
Degree	-0.110	0.053	*	-0.057	0.050	
Not known	-0.043	0.040		0.037	0.038	
Missing/Not applicable	-0.172	0.152		0.136	0.145	
Father's education (O levels)						
No qualifications	-0.093	0.024	**	0.016	0.023	
Vocational	-0.020	0.031		0.025	0.030	
A levels	0.032	0.034		0.014	0.032	
Professional	-0.130	0.077		-0.020	0.073	
Degree	0.002	0.033		-0.061	0.032	
Not known	-0.048	0.035		-0.002	0.034	
Missing/Not applicable	-0.166	0.078	*	-0.139	0.074	
Father's Social class (Skilled non-manual)						
Professional	0.039	0.045		-0.069	0.043	

	Managerial-technical	0.013	0.031		-0.042	0.030	
	Skilled manual	-0.086	0.029	**	-0.036	0.027	
	Partly skilled manual	-0.096	0.035	**	-0.050	0.033	
	Unskilled	-0.093	0.048		-0.075	0.046	
	Missing/Other	-0.019	0.070		0.059	0.066	
Parental authoritarianism (H3)		-0.012	0.008		0.065	0.008	**
Cognitive Ability (H4)							
	British Ability Score	0.003	0.003		-0.010	0.003	**
	Friendly Maths Test	0.003	0.001	**	-0.002	0.001	**
Control variables							
	Female	0.117	0.017	**	0.067	0.016	**
N		6345			6348		

* indicates statistical significance at 5% level
** indicates statistical significance at 1% level

Table 5: Model 4: Education and liberalism, psychodynamic and field of study effects

	Economic liberalism			Social liberalism		
	B	St. Err		B	St. Err	
Model 4 (psychodynamic and education coefficients only)						
Highest educational qualification (O levels)(H6 and H7)						
No qualifications	-0.042	0.020	*	0.002	0.019	
CSE	0.002	0.030		-0.014	0.029	
A level	-0.020	0.032		-0.130	0.031	**
Diploma	0.052	0.032		-0.082	0.031	**
Degree in Medicine	0.038	0.075		-0.276	0.072	**
Degree in Science subject	0.070	0.035	*	-0.326	0.034	**
Degree in Social science and humanities subject	-0.081	0.038	*	-0.554	0.036	**
Degree in Business subject	0.147	0.054	*	-0.242	0.052	**
Degree in Creative Arts subject	-0.093	0.065		-0.441	0.063	**
Degree in Other/Unknown subject	0.147	0.048	**	-0.237	0.046	**
Psychological security (H5)	-0.101	0.008	**	-0.016	0.008	*
N	6327			6331		

* indicates statistical significance at 5% level
** indicates statistical significance at 1% level
Note: All previously used explanatory variables remain unchanged in this model

Table 6: Model 5: Education and liberalism, field of study and self-selection effects

	Economic liberalism			Social liberalism		
	B	St. Err		B	St. Err	
Model 5						
Constant	2.597	0.089		3.928	0.083	
Education effects						
No qualifications	-0.021	0.036		-0.027	0.034	
CSE	-0.038	0.058		-0.005	0.054	
A level	0.062	0.047		-0.149	0.044	**
Diploma	0.096	0.051		-0.077	0.048	
Degree in Medicine	0.030	0.093		-0.321	0.087	**
Degree in Science subject	0.058	0.050		-0.326	0.047	**
Degree in Social science subject	-0.011	0.052		-0.570	0.049	**
Degree in Business subject	0.227	0.075	**	-0.176	0.070	*
Degree in Creative Arts subject	-0.069	0.087		-0.411	0.082	**
Degree in Other/Unknown subject	0.160	0.071	*	-0.353	0.067	**
Psychological Security (H5)	-0.110	0.014	**	-0.021	0.013	
Allocation effects (H1)						
Social class (Unskilled)						
Professional	0.229	0.058	**	-0.008	0.055	
Managerial-technical	0.038	0.035		0.018	0.033	
Skilled non-manual	-0.121	0.046	**	0.062	0.043	
Skilled manual	-0.227	0.053	**	0.081	0.049	
Partly skilled manual	-0.130	0.128		0.052	0.120	
Other	-0.153	0.040	**	0.017	0.038	
Pre-adult effects						
Parental authoritarianism (H4)	-0.025	0.013		0.045	0.013	**
Cognitive Ability (H3)						
British Ability Score	0.002	0.005		-0.011	0.005	*
Friendly Maths Test	0.003	0.001	*	-0.002	0.001	
Prior values (self-selection)						
Liberalism (scale)	-0.019	0.014		-0.123	0.013	**
Trade Unions necessary	-0.129	0.042	**	0.025	0.040	
Strikes should not be illegal	-0.059	0.025	*	-0.098	0.024	**
Controls						
Female	0.117	0.029	**	0.200	0.028	**
N	2415			2416		